



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
--------------------	-------------	-----------------------	------------------

09/132,157 08/11/98 FORBES

L 303.229US2

EXAMINER

MM11/0528

SCHWEGMAN LUNDBERG WOESSNER & KLUTH
P O BOX 2938
MINNEAPOLIS MN 55402

PRENTY, M

PAPER NUMBER

2822

DATE MAILED: 05/28/99

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

- ☒ Responsive to communication(s) filed on 3/18/99
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 11-14 and 24-37 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 11-14 and 24-37 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of Reference Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 8
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

-SEE OFFICE ACTION ON THE FOLLOWING PAGES-

This Office Action is in response to the amendment filed March 18, 1999.

Claims 11-14, 24, 26 and 28-31 are rejected under 35 U.S.C. §102(b) as anticipated by Nayak et al. (IEEE Electron Device Letters, Vol. 12, No. 4, April 1991, pages 154-156, already of record). See the entire reference.

Claims 25, 32 and 37 are rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Nayak et al. (IEEE Electron Device Letters, Vol. 12, No. 4, April 1991, pages 154-156, already of record). See the entire reference. Note that a device claim's process limitations are not determinative of patentability. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Claims 30 and 31 are rejected under 35 U.S.C. §102(b) as anticipated by Sato et al. (United States Patent 5,285,088 already of record). See the entire patent.

Claims 32 and 37 are rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Sato et al. (United States Patent 5,285,088 already of record). See the entire patent. Note that a device claim's process limitations are not determinative of patentability. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Claim 37 is rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Selvakumar et al. (United States Patent 5,426,069 already of record). See Selvakumar et al's Figs. 1-7 embodiment in particular. Note that a device claim's process limitations are not determinative of patentability. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Claims 30 and 31 are rejected under 35 U.S.C. §102(e) as anticipated by Crabbe' et al. (United States Patent 5,821,577 already of record). See the entire patent.

Claims 32 and 37 are rejected under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Crabbe' et al. (United States Patent 5,821,577 already of record). See the entire patent. Note that a device claim's process limitations are not determinative of patentability. See *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Claims 11-14 and 24-34 are rejected under 35 U.S.C. §103 as being unpatentable over Solomon et al. (newly cited United States Patent 5,019,882) together with Wolf (cited in the Information Disclosure Statement filed March 18, 1999). Specifically, the difference between Solomon et al. (see the entire patent) and the set of rejected claims is the former's channel length is not disclosed while the latter has a channel length of less than $7\mu\text{m}$. Wolf teaches that channel lengths are conventionally less than $7\mu\text{m}$ (see the entire reference). It would have been obvious to one skilled in this art to provide the channel of Solomon et al.'s MOSFET with a length less than $7\mu\text{m}$ as suggested by Wolf. Claims 11-14 and 24-34 are thus rejected under 35 U.S.C. §103 as being unpatentable over Solomon et al. together with Wolf.

Claim 35 is rejected under 35 U.S.C. §103 as being unpatentable over Solomon et al. (newly cited United States Patent 5,019,882) together with Wolf (cited in the Information Disclosure Statement filed March 18, 1999) and Nayak et al. (IEEE Electron Device Letters, Vol. 12, No. 4, April 1991, pages 154-156, already of record). Specifically, the difference between the obvious Solomon et al. / Wolf PMOS transistor and claim 35's PMOS transistor is the former's substrate doping is not explicitly disclosed while the latter substrate doping is n-type. Nayak et al. illustrates the conventional PMOS transistor formed in an n-type substrate (see the entire reference). It would have been further obvious to one skilled in this art to form the obvious

Solomon et al. / Wolf PMOS transistor in an n-type substrate as suggested by Nayak et al.. Claim 35 is thus rejected under 35 U.S.C. §103 as being unpatentable over Solomon et al. together with Wolf and Nayak et al.

Claim 36 is rejected under 35 U.S.C. §103 as being unpatentable over Solomon et al. (newly cited United States Patent 5,019,882) together with Wolf (cited in the Information Disclosure Statement filed March 18, 1999) and Tubbs et al. (newly cited United States Patent 4,295,897). Specifically, the difference between the obvious Solomon et al. / Wolf PMOS transistor and claim 36's PMOS transistor is the latter is formed on a n-type well formed in a p-type substrate. Tubbs et al. illustrates a PMOS transistor formed on a n-type well formed in a p-type substrate (see the entire patent). It would have been further obvious to one skilled in this art to form the obvious Solomon et al. / Wolf PMOS transistor on an n-type well formed in a p-type substrate as suggested by Tubbs et al.. Claim 36 is thus rejected under 35 U.S.C. §103 as being unpatentable over Solomon et al. together with Wolf and Tubbs et al..

Applicant's arguments with respect to the rejection of claims 11-14, 24, 26 and 28-31 under 35 U.S.C. §102(b) as anticipated by Nayak et al. are not persuasive because Nayak et al's $\text{Si}_{1-x}\text{Ge}_x$ channel region is, in fact, "adjacent" its gate oxide.

Applicant's arguments with respect to the rejection of claims 25, 32 and 37 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Nayak et al. are not persuasive because there is no evidence that those device claims's process limitations preclude Nayak et al's cap and setback layers.

Applicant's arguments with respect to the rejection of claims 30 and 31 under

35 U.S.C. §102(b) as anticipated by Sato et al. are not persuasive because Sato et al. does, in fact, disclose a gate oxide (see Sato et al. at column 8, lines 22-32).

Applicant's arguments with respect to the rejection of claims 32 and 37 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Sato et al. are not persuasive because Sato et al. does, in fact, disclose a gate oxide (see Sato et al. at column 8, lines 22-32).

Applicant's arguments with respect to the rejection of claim 37 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Selvakumar et al. are not persuasive because there is no evidence that claim 37's process limitations produce a structure inherently different from the structure described by Selvakumar et al..

Applicant's arguments with respect to the rejection of claims 30 and 31 under 35 U.S.C. §102(e) as anticipated by Crabbe' et al.¹ are not persuasive because Crabbe' et al's $\text{Si}_{1-x}\text{Ge}_x$ channel region is, in fact, "adjacent" its gate oxide.

Applicant's arguments with respect to the rejection of claims 32 and 37 under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over Crabbe' et al. are not persuasive because there is no evidence that those device claims's process limitations produce a structure inherently different from the structure described by Crabbe' et al..

Forbes (United States Patent 5,879,996) is related to this application.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, THIS ACTION IS MADE FINAL. See M.P.E.P. §706.07(a). Applicant is reminded of the extension of time policy set forth in 37 C.F.R. §1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION.

¹ Crabbe' et al's effective filing date is January 10, 1991, not November 30, 1992.

IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. §1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Registered practitioners can telephone examiner Prenty at (703) 308-4939.
All other parties should telephone (703) 308-0956. The fax number is (703) 308-7722.

Mark Prenty
Mark V. Prenty
Primary Examiner